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10/663,662	09/17/2003	Yasuko Fukuzawa	500.36172VC3	3798
20457	7590	06/15/2004	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP			NGUYEN, TANH Q	
1300 NORTH SEVENTEENTH STREET			ART UNIT	
SUITE 1800			PAPER NUMBER	
ARLINGTON, VA 22209-9889			2182	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/663,662	FUKUZAWA ET AL.
Examiner	Art Unit	
Tanh Q. Nguyen	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 09/17/03, 09/29/03, 10/24/03, 04/02/04.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-16 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 17 September 2003 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. 09/123456789.  
3.  Copies of the certified copies of the priority documents have been received in this National application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

National Stage  
  
FRITZ FLEMING  
PRIMARY EXAMINER  
GROUP 2100

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 09/17/03, 04/02/04.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

## **DETAILED ACTION**

### ***Priority***

1. The current status of nonprovisional parent application 10/326,978 should be included.

### ***Specification***

2. The abstract of the disclosure is objected to because it is not consistent with the teachings of the invention - I/O subsystem A for open system, and I/O subsystem B for a mainframe are not consistently used in the Abstract. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

3. Claims 1-3 are objected to because of the following informalities: It appears that there are two I/O requests in claim 1 - an I/O request issued from the host (line 8), and an I/O request sent by the controller (line 9). The examiner suggests that applicant differentiates the two I/O requests to particularly point out and distinctly claim the subject matter, which applicant regards as the invention - e.g. the I/O request sent by the controller can be referred as "a modified I/O request".
4. Claim 2 is objected to because of the following informalities: "designates" in line 3 should be replaced with "designating". Appropriate correction is required.
5. Claims 4-10 and 11-16 are objected to because of the following informalities:

Claim 4 recites "a write request" on line 8, and "the write request" on line 13. It appears that there is no support in the specification for the write request on line 8 to be the same write request as the write request on line 13.

Claim 11 recites "a write request" on line 6, and "the write request" on line 10. It appears that there is no support in the specification for the write request on line 6 to be the same write request as the write request on line 10.

Furthermore, the limitations in claim 1 suggest two different write requests. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 4-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 4 recites in lines 8-14 the limitation "wherein said controller... sends the write request to the selected storage system and said second disk identification information" is not enabled because the controller cannot send the write request to the second disk identification information.

8. Claims 8-10 and 15-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 8, there is no support in the specification for the first disk controller and the second disk controller to both have an interface for coupling to the host computer.

In claim 15, there is no support in the specification for the interface for coupling the controller to the second disk controller to be the same type of interface for coupling the second disk controller to the host computer - as there is no support for the second disk controller to have an interface for coupling to the host computer.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

10. Claims 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "said second disk controller is coupled to said host computer, via the same type of interface as the interface for coupling to said host computer", which is ambiguous - as the metes and bounds cannot be established for the claimed invention.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-3; 4-9; 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by **Beal et al. (USP 5,155,845)**.

13. As per claim 1, **Beal** teaches a computer system [FIG. 12] comprising:  
a first storage system [107, 113, 111, FIG. 12] comprising a first disk controller [113, FIG. 12], and one or more first disks [111, FIG. 12] coupled to said first disk controller;

a second storage system [127, 123, 121, FIG. 12] comprising a second disk controller [123, FIG. 12], and one or more second disks [121, FIG. 12] coupled to said second disk controller; and

a controller [105, FIG. 12] coupled to said first storage system, said second storage system, and a host computer [101, FIG. 12],

wherein said controller receives an I/O request issued from said host computer (a subsequent write command: col. 28, lines 32-34), and sends an I/O request (col. 25, lines 59-63) to one of said first storage system and said second storage system (col. 28, lines 36-38; col. 29, lines 9-18) based on a disk ID (col. 3, lines 8-12) included in said I/O request issued from said host computer.

14. As per claims 2-3, Beal teaches the I/O request issued from the host computer further including a first address designating a storage area accessed by said host computer (col. 22, line 43-col. 23, line 15), and wherein said controller converts the first address to a second address designating a storage area in one of said first storage system and said second storage system, and sends an I/O request including said second address to said one of said first storage system and said second storage system (col. 27, lines 11-47) - claim 2;

the disk ID designating a disk recognized by the host computer (local volume 3: col. 28, lines 32-34) - claim 3.

15. As per claim 4, Beal teaches a system for storing data comprising:  
a first storage system [107, 113, 111, FIG. 12] comprising a first disk controller [113, FIG. 12] and at least one first disk [111, FIG. 12] coupled to said first disk controller;  
a second storage system [127, 123, 121, FIG. 12] comprising a second disk controller [123, FIG. 12] and at least one second disk [121, FIG. 12] coupled to said second disk controller; and  
a controller [105, FIG. 12] coupled to said first storage system, said second storage system, and a host computer [101, FIG. 12],

wherein said controller receives a write request from said host computer (a subsequent write command: col. 28, lines 32-34), selects a storage system including a target disk (remote volume 1 at remote disk drives 111 of DSC 107: col. 28, lines 23-24)

designated by first disk identification information included in the write request (local volume 3: col. 28, lines 32-34), obtains identification information designating a selected storage system [107, 113, 111, FIG. 12] and second disk identification information designating the target disk (remote volume 1 at remote disk drives 111 of DSC 107: col. 28, lines 23-24) based on said first disk identification information, and sends a write request to the selected storage system according to the identification information designating the selected storage system and the second disk identification information (col. 25, lines 43-63).

16. As per claims 5-9, Beal teaches the controller storing correlation information among first disk identification information (local volume 3), identification information designating a storage system (remote DSC 107), and second disk identification information (remote volume 1), and obtains said identification information designating the selected storage system and said second disk identification information based on said correlation information (col. 25, lines 43-63) - claim 5;

the correlation information being set in said controller by a service processor [101, FIG. 12] coupled to said controller - claim 6;

the second disk identification information being disk identification information assigned to a storage system including the target disk (remote volume 1 at remote disk drives 111 of DSC 107: col. 28, lines 23-) - claim 7;

the first disk controller and the second disk controller both having an interface [107, 127, FIG. 12] for coupling to the host computer - claim 8;

the second disk controller being coupled to the host computer, via the same type of interface [127, FIG. 12] as the interface [105, FIG. 12] for coupling to the host computer - claim 9.

17. As per claims 11-14, see the rejections to claims 4-7 above.
18. As per claim 15, Beal teaches the controller being coupled to the second disk controller via an interface [105, FIG. 12], which is the same type of interface [127, FIG. 12] via which the second disk controller is coupled to the host computer.

#### ***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 10, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

**Beal et al.**

Beal teaches the claimed invention in a mainframe environment, therefore does not teach the interface for coupling to the host computer being in accordance with SCSI, or the interface coupling the controller and the second disk controller being in accordance with SCSI. It would have been obvious, however, to one of ordinary skill in the art at the time the invention was made for the interface for coupling to the host computer, and for the interface coupling the controller and the second disk controller being in accordance with SCSI to allow Beal's invention to be practiced in a SCSI environment.

***Double Patenting***

22. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

23. Claims 4-9, 11-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of **U.S. Patent No. 6,721,841 (USP '841)** in view of **Beal et al.**

**USP '841** teaches a system for storing data comprising:

a first storage system comprising a first disk controller and at least one first disk coupled to said first disk controller (lines 6-9, claim 1); and  
a controller coupled to said first storage system and a host computer (lines 2-7, claim 1),

wherein said controller receives a write request from said host computer, selects a storage system including a target disk designated by first disk identification information included in the write request, obtains identification information designating a selected storage system and second disk identification information designating the target disk based on said first disk identification information, and sends a write request to the selected storage system according to the identification information designating the selected storage system and the second disk identification information (col. 10-23, claim 1).

**USP' 841** does not teach a second storage system comprising a second disk controller and at least one second disk coupled to said second disk controller; and the controller coupled to the second storage system.

**Beal** teaches a second storage system [127, 123, 121, FIG. 12] comprising a second disk controller [123, FIG. 12] and at least one second disk [121, FIG. 12] coupled to said second disk controller, and a controller [105, FIG. 12] coupled to said

second storage system to allow for communication between the controller and the second storage system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beal's second storage system into USP'841 to allow USP'841's controller to communicate with a second storage system.

24. Claims 1-9, 11-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4-5 of **U.S. Patent No. 6,529,976 (USP '976)** in view of **Beal et al.**

**USP '976** teaches a system for storing data comprising:

a first storage system comprising a first disk controller and at least one first disk coupled to said first disk controller (lines 7, claim 4; lines 5-6, claim 5); and  
a controller coupled to said first storage system and a host computer (lines 1-8, claim 4),

wherein said controller receives a write request from said host computer (lines 9-11, claim 4), selects a storage system including a target disk (destination disk: line 3, claim 5) designated by first disk identification information included in the write request (lines 2-8, claim 5), obtains identification information designating a selected storage system (another disk controller...upon said destination disk not being connected to said disk controller: lines 5-8, claim 5) and second disk identification information (which disk of another disk controller: lines 5-8, claim 5) designating the target disk based on said first disk identification information (lines 2-8, claim 5), and sends a write request to the

selected storage system according to the identification information designating the selected storage system and the second disk identification information (col. 14-17, claim 4).

USP' 976 does not teach a second storage system comprising a second disk controller and at least one second disk coupled to said second disk controller; and the controller coupled to the second storage system.

**Beal** teaches a second storage system [127, 123, 121, FIG. 12] comprising a second disk controller [123, FIG. 12] and at least one second disk [121, FIG. 12] coupled to said second disk controller, and a controller [105, FIG. 12] coupled to said second storage system to allow for communication between the controller and the second storage system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beal's second storage system into USP'976 to allow USP'976's controller to communicate with a second storage system.

25. Claims 1-9, 11-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of **U.S. Patent No. 6,098129 (USP '129)** in view of **Beal et al.**

**USP '129** teaches a system for storing data comprising:  
a first storage system comprising a first disk controller and at least one first disk coupled to said first disk controller (lines 7-9); and

a controller (lines 3-5) coupled to said first storage system (lines 10-11) and a host computer (lines 2-4),

wherein said controller receives a write request from said host computer (lines 20-21), selects a storage system (lines 24-28) including a target disk designated by first disk identification information included in the write request (lines 25-26), obtains identification information designating a selected storage system (lines 14-16) and second disk identification information designating the target disk (lines 16-19) based on said first disk identification information, and sends a write request to the selected storage system according to the identification information designating the selected storage system and the second disk identification information (lines 30-32).

USP' 129 does not teach a second storage system comprising a second disk controller and at least one second disk coupled to said second disk controller; and the controller coupled to the second storage system.

**Beal** teaches a second storage system [127, 123, 121, FIG. 12] comprising a second disk controller [123, FIG. 12] and at least one second disk [121, FIG. 12] coupled to said second disk controller, and a controller [105, FIG. 12] coupled to said second storage system to allow for communication between the controller and the second storage system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beal's second storage system into USP'129 to allow USP'129's controller to communicate with a second storage system.

26. Claims 4-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6-9, 11-12 of copending **Application No. 10/663,656 (S/N 656)** in view of **Beal et al.**

**S/N 656** teaches a system for storing data comprising:

a first storage system comprising a first disk controller and at least one first disk coupled to said first disk controller (lines 4-5, claim 6); and  
a controller coupled to said first storage system and a host computer (lines 2-5, claim 6),

wherein said controller receives a write request from said host computer, selects a storage system including a target disk designated by first disk identification information included in the write request, obtains identification information designating a selected storage system and second disk identification information designating the target disk based on said first disk identification information, and sends a write request to the selected storage system according to the identification information designating the selected storage system and the second disk identification information (lines 6-14, claim 6).

**S/N 656** does not teach a second storage system comprising a second disk controller and at least one second disk coupled to said second disk controller; and the controller coupled to the second storage system.

**Beal** teaches a second storage system [127, 123, 121, FIG. 12] comprising a second disk controller [123, FIG. 12] and at least one second disk [121, FIG. 12] coupled to said second disk controller, and a controller [105, FIG. 12] coupled to said

second storage system to allow for communication between the controller and the second storage system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beal's second storage system into S/N 656 to allow S/N 656's controller to communicate with a second storage system.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Quang Nguyen whose telephone number is (703) 305-0138, and whose e-mail address is tanh.nguyen36@uspto.gov. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 for After Final, Official, and Customer Services, or (703) 746-5672 for Draft to the Examiner (please label "PROPOSED" or "DRAFT").

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June 7, 2004